CONSERVATION OF BIRDS OF THE GUINDY NATIONAL PARK

V. SANTHARAM
RESEARCH SCHOLAR
SALIM ALI SCHOOL OF ECOLOGY
PONDICHERRY UNIVERSITY
PONDICHERRY
605013

T.R.S.R.

Habitat loss, fragmentation and alteration have been taking place all over the world over several centuries. The rate has, however, been very high in the past few decades, especially in the developing nations of tropics (Wilson 1988; Myers 1988). As a consequence of these there has been a gradual loss in the biodiversity. Unfortunately, the implications of these human activities have been realized only very recently and even now our knowledge in the field of conservation biology is rudimentary.

Studies from different parts of the world have shown that fragmentation and isolation of a once-extensive habitat has an adverse impact on its biodiversity. Smaller areas are able to support only a smaller proportion of species. Certain species are more prone to extinction than others. Reasons for such differential extinctions of species are not fully understood and several factors such as biogeographical, ecological, stochastic and species-specific requirements could contribute to these losses (Diamond et al. 1987; Karr 1990).

Among the well-documented cases of extinction of birds following fragmentation and isolation is the Barro Colorado Island which was isolated in 1914 following the construction of the Panama Canal. Atleast 60 species of birds were reported as having become extinct since its isolation, though the number could be more (Karr 1982 a, b, 1990). Another well-documentated case is that of the Bogor Botanical Gardens in Java where in 50 years of isolation, 1/3 of the 62 breeding and 77 non breeding birds were lost while several more populations are close to extinction (Diamond et al. 1987).

Guindy National Park is a typical example of a fragmented, isolated and altered habitat which has been steadily shrinking in size till its recent declaration as a National Park. With its present area of around 270 ha, Guindy now has a mosaic of habitats. The original vegetation of the park consisted of scrub jungle or the "tropical dry evergreen forest" of Champion and Seth (1968) or the "Albizia amara Community" of Meher-Homji (1973). This unique vegetation type occurs in parts of Deccan plateau and along the Coromandel - Circar coastal areas of south-eastern India. Physiognomically, it occurs as dense or discontinuous scrub-woodlands or thickets (See Meher-Homji 1973, 1974 for more details). Although still present in the park, this vegetation type has been degraded perhaps by excessive grazing by deer (Miura 1981) and by human intervention (pers obs.). A good proportion of the park area is now densely wooded by planting of both native and exotic trees. There is an open meadow (Polo field) and atleast two major tanks in the park area.

No data exists on the birdlife of the Guindy Park in the past when it was continuous with other scrub jungles in the environs of Madras city, almost all of which have given way to the expanding city. The present checklist of birds of the park has been compiled in the span of less than two decades. This list has an impressive total of about 150 species (Appendix).

However, a careful scrutiny of this list is warranted if we are to make a meaningful evaluation of the birdlife of the park. Only 56 of the total terrestrial birds recorded in the park breed regularly in the park. Atleast 43 species are long-distance migrants, the rest are local migrants and waterbirds, species whose status is unknown, vagrants, species that breed outside the park and

probable extinct species. A Studies of birdlife of the natural scrub areas within 35 kms of the city (which are themselves badly degraded and fragmented) revealed that at least fifteen resident species found there are no longer to be found in Guindy (Table 1; Gandhi 1986; Santharam 1989). These birds are typical inhabitants of the scrub jungles. We can reasonably presume that these species were once found in Guindy when it was contiguous with these scrub jungles and the habitat was unaltered. This is supported by the fact that some of these species were earlier reported (eg. Ring Dove, Baybacked Shrike, Bustard-Quail, Yellow-eyed Babbler - Selvakumar et al. 1981; Pers. Comm, Prof K.K. Neelakanta) are no longer seen in the park. Some of these birds are still seen in another fragmented and modified scrub area - the Campus of Madras Christian College which is closer to and has till very recently been connected with the scrub jungles of Vandalur Reserve Forest (Santharam 1989). Some of the resident birds, typical of scrub jungles, still found in the park are no longer common (eg. Jungle Wren-Warbler, Small Greenbilled Malkhoa) and could soon disappear.

We cannot attribute any single reason to account for these losses, though we may guess that habitat loss and isolation could be major causes. Birds which are habitat specialists are usually adversely affected by loss of their preferred micro-habitats. Small population sizes, lack of a source population from which immigration could take place to compensate local extinctions, predation, competition from edge or generalist species, low adult survival rates, losses due to secondary extinctions could be some of the other reasons that could explain these losses.

Considering the prospects of conserving the birdlife of the park at the present level, we see that out of the 56 resident terrestrial birds, 31 (about 55%) are restricted

to specialized or atleast non-urban habitats (Table 2). With the park being surrounded by urban areas excepting some large campuses such as the I.I.T. CLRI, which are themselves steadily expanding in built-up areas, the prospects of long-term survival of these habitat specialist birds look grim. The study of Bogor Botanical Garden (Diamond et al. 1987) concluded that 'small initial population size and rareness or absence in the surrounding countryside were the two main variables that identified the extinction-prone populations. However, in the case of Barro Colorado Island, changes in the habitats and low adult survival rates were cited as major reasons (Karr, 1990).

Maintaining the bird diversity at the present levels in the Guindy Park will be a tough challenge to the park managers as it is shown that unless intensively managed, even the largest of the preserves will, in due course, starting losing species (Soule et al. 1979; Wilcox 1980). Management of habitat can be done only if we know the biology and requirements of the species we wish to preserve. This knowledge is, sadly, lacking in the case of our birds.

So the first step in conservation of birds of Guindy would be to give priority to research and regular monitoring of the birdlife of the park, especially the vulnerable 'specialists'. Habitat manipulation within the park should be restricted to the maximum extent possible including activities such as clearing of undergrowth along roads to increase visibility to enable visitors to see deer etc. Major ~~food~~ key resources should be identified such as fruiting trees that provide food during the critical periods; dead trees and branches that provide nest and

roost-holes to woodpeckers, barbets and other secondary hole-nesters and special efforts should be undertaken to ensure their availability. It should be realized that many of the birds found in Guindy can survive only if there is a source population in the surrounding area that can re-populate the park when losses occur. To achieve this, we must maintain adequate buffer habitats in the near vicinity of the park, especially in the larger campuses. An educational campaign must be started to educate people in the surroundings of the park, on the values of protecting Guindy and also involve them in protecting the park.

To go a step further, it would be prudent to initiate steps to conserve the available scrub jungles in the state before they too face the same problems as Guindy. The forest areas in the arid and dry tropics are most vulnerable and least protected (Janzen 1988, Daniels et. al. 1990). Satellite imageries have shown that less than 1% of the potential area have scrub-jungles (Meher-Homji 1986) and even these are fragmented and subjected to several disturbances (Santharam 1989). Being a unique habitat type and the original natural habitat of this region, scrub jungles deserve more attention.

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APPENDIX

A CHECKLIST OF BIRDS OF THE GUINDY NATIONAL PARK

PODICIPEDIDAE

1. Little Grebe - Podiceps ruficollis - LM/OB

PHALACROCORACIDAE

2. Indian Shag - Phalacrocorax fuscicollis - LM
3. Little Cormorant - P. niger - LM

ARDEIDAE

4. Grey Heron - Ardea cinerea - LM
5. Little Green Heron - Ardeola striatus - LM
6. Pond Heron or Paddybird - A. grayii - LM
7. Cattle Egret - Bubulcus ibis - LM
8. Little Egret - Egretta garzetta - LM
9. Reef Heron - E. gularis - LM
10. Night Heron - Nycticorax nycticorax - LM
11. Malay Bittern - Gorsachius melanolophus - MI

CICONIIDAE

12. Openbilled Stork - Anastomus oscitans - LM

THRESKIORNITHIDAE

13. White Ibis - Threskiornis aethiopica - LM

ANATIDAE

14. Goose Sp. - Anser Sp. - MI
15. Lesser Whistling Teal - Dendrocygna javanica - LM
16. Spotbilled Duck - Anas poecilorhyncha - LM

ACCIPITRIDAE

17. Blackwinged Kite - Elanus caeruleus - LM
18. Blackcrested Bazza - Aviceda leuphotes - MI
19. Honey Buzzard - Pernis ptilorhynchus - RE/OB
20. Pariah Kite - Milvus migrans - RE
21. Brahminy Kite - Haliastur indus - RE
22. Shikra - Accipiter badius - RE
23. Buzzard sp. - Buteo sp. - MI
24. White-eyed Buzzard-eagle - Butastur teesa - RE/OB
25. Crested Hawk-Eagle - Spizaetus cirrhatus - LM
26. Booted Hawk-Eagle - Hieraaetus pennatus - MI
27. Greater Spotted Eagle - Aquila clanga - MI
28. Whitebellied Sea Eagle - Haliaeetus leucogaster - OB
29. Montagu's Harrier - Circus pygargus - MI
30. Marsh Harrier - Circus aeruginosus - MI
31. Short-toed Eagle - Circaetus gallicus - LM
32. Crested Serpent Eagle - Spilornis cheela - LM

FALCONIDAE

33. Oriental Hobby - Falco severus - VA
34. Kestrel - Falco tinnunculus - MI

PHASIANIDAE

35. Grey Partridge - Francolinus pondicerianus - RE

RALLIDAE

36. Whitebreasted Waterhen - Amaurornis phoenicurus - LM
37. Moorhen - Gallinula chloropus - LM

RECURVIROSTRIDAE

38. Blackwinged Stilt - Himantopus himantopus - MI

BURHINIDAE

39. Stone Curlew - Burhinus oedicnemus - RE

CHARADRIIDAE

40. Redwatted Lapwing - Vanellus indicus - RE
41. Yellow-wattled Lapwing - V. malabaricus - RE
42. Eastern Golden Plover - Pluvialis dominica - MI
43. Green Sandpiper - Tringa ochropus - MI
44. Wood Sandpiper - T. glareola - MI
45. Common Sandpiper - T. hypoleucos - MI
46. Fantail Snipe - Gallinago gallinago - MI
47. Little Stint - Calidris minuta - MI

COLUMBIDAE

48. Yellowlegged Green Pigeon - Treron phoenicoptera - LM
49. Blue rock pigeon - Columba livia - LM/OB
50. Rufous Turtle Dove - Streptopelia orientalis - MI
51. Indian Ring Dove - Streptopelia decaocto - EX
52. Red Turtle Dove - S. tranquebarica - EX
53. Spotted Dove - S. chinensis - RE

PSITTACIDAE

54. Alexandrine Parakeet - Psittacula eupatria - VA
55. Roseringed Parakeet - P. krameri - RE
56. Blossomheaded Parakeet - P. cyanocephala - LM

CUCULIDAE

57. Redwinged Crested Cuckoo - Clamator coromandus - MI
58. Pied Crested Cuckoo - Clamator jacobinus - RE
59. Common Hawk Cuckoo - Cuculus varius - RE
60. Indian Cuckoo - Cuculus micropterus - LM
61. Small Cuckoo - C. poliocephalus - MI
62. Indian Plaintive Cuckoo - Cacomantis passerinus - LM
63. Drongo-Cuckoo - Surniculus lugubris - LM
64. Koel - Eudynamys scolopacea - RE
65. Small greenbilled Malkhoa - Rhopodytes viridirostris - RE
66. Crow-pheasant - Centropus sinensis - RE

STRIGIDAE

67. Barn owl - Tyto alba - RE/OB
68. Collared Scops owl - otus bakkamoena - RE
69. Brown Hawk Owl - Ninox scutulata - RE
70. Spotted owlet - Athene brama - RE

CAPRIMULGIDAE

71. Common Indian Nightjar - Caprimulgus asiaticus - RE

APODIDAE

72. House Swift - Apus affinis - LM
73. Palm Swift - Cypsiurus parvus - RE

ALCEDINIDAE

74. Lesser Pied Kingfisher - Ceryle rudis - LM/OB
75. Common Kingfisher - Alcedo atthis - LM/OB
76. Whitebreasted Kingfisher - Halcyon smyrnensis RE
77. Blackcapped Kingfisher - H. pileata - LM

MEROPIDAE

78. Chestnutheaded Beeeater - Mereps leschenaulti - VA
79. Bluetailed Beeeater - M. philippinus - LM
80. Green Bee-eater - M. orientalis. - RE/OB

CORACIIDAE

81. Indian Roller - Coracias benghalensis - RE

UPUPIDAE

82. Hoopoe - Upupa epops - RE

CAPITONIDAE

83. Crimsonbreasted Barbet - Megalaima haemacephala - RL

PICIDAE

84. Lesser Goldenbacked Woodpecker - Dinopium benghalense RE

PITTIDAE

85. Indian Pitta - Pitta brachyura - MI

ALAUDIDAE

86. Rufous winged Bushlark - Mirafra assamica - RE
87. Ashy crowned Finch-lark - Eremopterix grisea - RE

HIRUNDINIDAE

88. Swallow - Hirundo rustica - MI
89. Red rumped Swallow - H. daurica - LM

LANIIDAE

90. Bay backed Shrike - Lanius vittatus - EX
91. Brown Shrike - L. cristatus - MI

ORIOLIDAE

92. Golden Oriole - Oriolus oriolus - LM/OB

DICRURIDAE

93. Black Drongo - Dicrurus adsimilis - RE
94. Grey Drongo - D. leucophaeus - MI
95. White bellied Drongo - D. caerulescens - LM

ARTAMIDAE

96. Ashy Swallow-Shrike - Artamus fuscus - RE

STURNIDAE

97. Grey headed Myna - Sturnus malabaricus - LM
98. Rosy Pastor - S. roseus - MI
~~99. Common Myna - Acridotheres~~
99. Brahminy Myna - S. pagodarum - RE/OB
100. Common Myna - Acridotheres tristis - RE

CORVIDAE

101. Indian Treepie - Dendrocitta vagabunda - RE
102. House Crow - Corvus splendens - RE
103. Jungle Crow - C. macrorhynchus - RE

CAMPEPHAGIDAE

104. Common Wood-Shrike - Tephrodornis pondicerianus - RE

105. Large Cuckoo-Shrike - Coracina novaehollandiae - LM
106. Blackheaded Cuckoo-Shrike - C. melanoptera - LM
107. Ashy Minivet - Pericrocotus divaricatus - MI
108. Small Minivet - P. cinnamomeus - RE

IRENIDAE

109. Common Iora - Aegithina tiphia - RE

PYCNONOTIDAE

110. Redwhiskered Bulbul - Pycnonotus jocosus - RE
111. Redvented Bulbul - Pycnonotus cafer - RE
112. Whitebrowed Bulbul - P. luteolus - RE

MUSCICAPIDAE

113. Yelloweyed Babbler - Chrysomma sinense - Ex
114. Whiteheaded Babbler - Turdoides affinis - RE
115. Brown Flycatcher - Muscicapa latirostris - MI
116. Brownbreasted Flycatcher - M. muttui - MI
117. Bluethroated Flycatcher - M. rubeculoides - MI
118. Redbreasted Flycatcher - M. parva - MI
119. Paradise Flycatcher - Terpsiphone paradisi - MI
120. Blacknaped Flycatcher - Hypothymis azurea - LM
121. Jungle Wren-Warbler - Prinia sylvatica - RE
122. Tailorbird - Orthotomus sutorius - RE
123. Thickbilled Warbler - Acrocephalus aedon - MI
124. Blyth's reed Warbler - A. dumetorum - MI
125. Booted Warbler - Hippolais caligata - MI
126. Orphean Warbler - Sylvia hortensis - MI
127. Lesser Whitethroat - S. curruca - MI
128. Greenish Leaf Warbler - Phylloscopus trochiloides - MI
129. Large Crowned Leaf Warbler - P. occipitalis - MI
130. Magpie-Robin - Copsychus saularis - RE
131. Black Redstart - Phoenicurus ochruros - MI
132. Stone chat - Saxicola torquata - MI
133. Pied Bushchat - S. caprata - LM

134. Indian Robin - Saxicoloides fulicata - RE
135(a) Orangeheaded ground Thrush - Zoothera citrina citrina - MI
(135(b) Whitethroated ground Thrush - Z. c. cyanotus - LM)
136. Dark Thrush - Turdus obscurus - MI

MOTACILLIDAE

137. Paddyfield Pipit - Anthus novaeseelandiae - RE
138. Forest Wagtail - Motacilla indica - MI
139. Grey Wagtail - M. cinerea - MI
140. Large Pied Wagtail - M. maderaspatensis - RE/OB

DICAEIDAE

141. Thickbilled Flowerpecker Dicaeum agile - VA
142. Tickell's Flowerpecker - D. erythrorhynchos - VA

NECTARINIIDAE

143. Purplerumped Sunbird - Nectarinia zeylonica - RE
144. Loten's Sunbird - N. lotenia - RE
145. Purple Sunbird - N. asiatica - RE

PLOCEIDAE

146. House Sparrow - Passer domesticus - RE
147. Yellow-throated Sparrow - Petronia xanthocollis - RE
148. Spotted Munia - Lonchura punctulata - RE
149. Blackheaded Munia - Lonchura malacca - VA

Note: While compiling the above checklist, I have omitted some doubtful and unconfirmed species listed or recorded by earlier observers.
- V. Santharam.

RE - Resident
MI - Long-distance migrant
LM - Local migrants (incl. birds that may breed outside GNP)
VA - Vagrant
OB - occasional breeder
~~RES - Habitat Specialist~~
EX - Extinct or nearly extinct.

TABLE-I
PROMINENT ABSENTEES

1. Common Peafowl — *Pavo cristatus*
2. Yellowlegged Button Quail — *Turnix tanki*
3. Common Bustard-Quail — *Turnix suscitator*
4. Indian Ring Dove — *Streptopelia decaocto*
5. Red Turtle Dove — *S. tranquebarica*
6. Little Brown Dove — *S. senegalensis*
7. Baybacked Shrike — *Lanius vittatus*
8. Rufousbacked Shrike — *Lanius schah*
9. Rufousbellied Babbler — *Dumetia hyperythra*
10. Yellow-eyed Babbler — *Chrysomma sinense*
11. Common Babbler — *Turdoides caudatus*
12. Whitebrowed Fantail Flycatcher — *Rhipidura aureola*
13. Whitethroated Munia — *Lonchura malabarica*

Table - 2

Resident Species of GNP found in non-urban (habitat) / 'specialists'

1. Honey Buzzard - Pernis ptilorhyncus
2. White-eyed Buzzard-eagle - Butastur teesa
3. Grey Partridge - Francolinus pondicerianus
4. Stone curlew - Burhinus oedicnemus
5. Yellow-wattled Lapwing - Vanellus malabaricus
6. Pied Crested cuckoo - Clamator jacobinus
7. Common Hawk-Cuckoo - Cuculus varius
8. Small Greenbilled Malkhoa - Rhopodytes viridirostris
9. Crowpheasant - Centropus sinensis
10. Collared Scops owl - Otus bakkamoena
11. Brown Hawk-owl - Ninox scutulata
12. Common Indian Nightjar - Caprimulgus asiaticus
13. Small Green Bee-eater - Merops orientalis
14. Indian Roller - Coracias benghalensis
15. Hoopoe - Upupa epops
16. Rufouswinged Bushlark - Mirafra assamica
17. Ashycrowned Finchlark - Eremopterix grisea
18. Brahminy Myna - Sturnus pagodarum
19. Indian Treepie - Dendrocitta vagabunda
20. Common Wood-Shrike - Tephrodornis pondicerianus
21. Small Minivet - Pericrocotus cinnamomeus
22. Common Iora - Aegithina tiphia
23. RedwhiskRered Bulbul - Pycnonotus jocosus
24. Whitebrowed Bulbul - Pycnonotus luteolus
25. Jungle Wren-warbler - Prinia sylvatica
26. Magpie Robin - Copsychus saularis
27. Indian Robin - Saxicoloides fulicata
28. Paddyfield Pipit - Anthus novaseelandiae
29. Purple Sunbird - Nectarinia asiatica
30. Yellowthroated Sparrow - Petronia xanthocollis
31. Spotted Munia - Lonchura punctulata